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ABSTRACT

This fact sheet uses a question-and-answer format to summarize what is known about preventing mental retardation through use of bicycle helmets. Questions and answers address the following topics: the importance of bicycle helmets; the number of bike riders injured or killed each year in bicycle crashes (about 1,000 killed, over 500,000 people injured, of whom 32.5 percent suffer head injuries); data on children and bicycle head injuries (138,000 per year); the rate of helmet usage for bicycle riders (fewer than 2 percent of children), despite the evidence that helmet usage reduces head injuries by 85 percent; tips for choosing and fitting a bicycle helmet; barriers to children's helmet use (lack of awareness of the need, cost, and peer pressure); and what states and communities are doing and can do to increase use of bicycle helmets. Additional organizational and print resources are listed. (DB)

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Preventing Mental Retardation through Use of Bicycle Helmets

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The Arc
A national organization on mental retardation

S. A. Davis

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Q&A

Preventing Mental Retardation Through Use of Bicycle Helmets

Why are bicycle helmets important?

Bicycling has served as a means of transportation and a popular recreational activity throughout this century. During the last decade alone, Americans have purchased more than 100 million bicycles. An expansion of bicycle usage and an ever-growing, complicated traffic system have resulted in an increasing number of injuries to cyclists. Research has shown that the most effective method of preventing serious injury to bike riders is bicycle helmet use.

A bicycle helmet cannot keep a cyclist from crashing, but it can significantly reduce the chance of serious brain injury by absorbing the impact that would hit the skull and brain in a crash. The helmet's protective inner liner absorbs the blow and cushions the rider's head. Because the brain is so important, controlling thought processes, motor activities, memory and emotion, even a mild injury can cause serious problems. Bicycle helmet use can reduce disability and save many lives each year.

How many bike riders are injured or killed each year in bicycle crashes?

Scientists from the U.S. Centers for Disease Control and Prevention (CDC) reviewed bicycle deaths and injury data from 1984 through 1988 and found that some 1,000 people died each year from bicycle crashes. Head injury was involved in 62 percent of those deaths. Some 558,000 people sustained bicycle-associated injuries each year, and of those, 32.5 percent or 181,000 suffered head injuries. The CDC estimated that if all bicyclists had worn helmets during the five-year study period, one death could have been prevented every day and one head injury could have been prevented every four minutes (Sacks et al., 1991).

What does the data show about children and bicycle head injuries?

The same study found that each year more than 138,000 children age 14 and under suffered head injuries from bicycle crashes. About 245 died from their head injuries. Males in the 10-14 age group had the highest death rate due to head injuries, and males age 5-9 had the highest rate of head injuries. At all ages, males were much more involved in bicycle crashes than females (Sacks et al., 1991). A third of the head injuries due to bike crashes are traumatic and can result in physical or mental impairment (The National SAFE KIDS Campaign, undated).

Young children are at special risk because their stages of development limit their understanding and, therefore, influence how they behave in traffic situations. For instance, children may not understand stopping distance, believing a car can stop as fast as a person. They typically do not develop a sense of danger until much before age 8 and may not understand the threat cars pose. Young riders may also think that if they can see the driver, the driver can see them. Traffic is only part of the problem, for the majority of bike crashes occur in parks, bike paths or driveways and not on roads (Harborview Injury Prevention and Research Center).

What is the rate of helmet usage for bicycle riders?

In the study cited above, fewer than 10 percent of all cyclists wore helmets, and fewer than 2 percent of riders under age 15 wore them (Sacks et al., 1991). A study in the New England Journal of Medicine (Thompson et al., 1989) concluded that helmet use reduced head injuries by 85 percent and brain damage by 88 percent. People who ride without helmets are seven times more likely to suffer head injuries and eight times more likely to suffer brain damage than those who wear helmets.

Bike helmets are critical safety equipment because a child need only fall from a height of 2 feet and hit his head to suffer traumatic brain injury. A cyclist riding at only 20 miles per hour (an average speed for young cyclists) can be killed by hitting her head on a hard surface.

Traumatic brain injury impairs cognitive, physical, psychosocial and emotional functioning temporarily or permanently, and can lead to death. A child could suffer memory loss, problems with reading comprehension, an inability to concentrate, severe mood swings, and impulsive, uncontrollable behavior (The National SAFE KIDS Campaign, undated).

What are tips for choosing and fitting a bike helmet?

A helmet should be snug, but not tight, and have an adjustable inner liner. Most have different sizes of foam pads that can be inserted to make the helmet fit better. It should sit level and not rock back and forth or from side to side. The helmet should meet approved safety standards which means it has been tested by the American National Standards Institute (the label will say "ANSI"), Snell Memorial Foundation ("Snell") or the American Society for Testing and Materials ("ASTM"). Any helmet worn in a crash should be replaced, as it may be damaged even though the damage is not visible.

What are the barriers to children's helmet use?

The main barriers are parents' lack of awareness of the need, cost of the helmet and peer pressure. Because so few children are wearing helmets, nobody wants to start. The American Academy of Pediatrics (Undated) offers the following tips for parents to encourage their child to develop a helmet habit.

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Establish the helmet habit early. Have your children wear helmets as soon as they start to ride bikes -- even if they are passengers on the back of adults' bikes. If they learn to wear helmets whenever they ride bikes, it will become a habit for a lifetime. It's never too late, however, to get your children into helmets.

- **Wear a helmet yourself.** Kids learn best by observing you. Whenever you ride your bike, put on your helmet. Plan bicycle outings during which all family members wear their helmets to further reinforce the message. The most important factor influencing children to wear helmets is riding with an adult who wears a helmet.
- **Talk to your kids about why you want them to protect their head.** There are many things you can tell your children to convince them of the importance of helmet use: 1) Bikes are vehicles, not toys. 2) You love and value your children. 3) They can hurt their heads permanently or even die from head injuries.
- **Reward your kids for wearing helmets.** Praise them; give them special treats or privileges when they wear their helmets without having to be told to.
- **Don't let children ride their bikes unless they wear their helmets.** Be consistent. If you allow your children to ride occasionally without their helmets, they won't believe that helmet use really is important. Tell your kids they have to find another way to play, or must walk or take a bus to get somewhere, if they don't want to use their helmets.
- **Encourage your children's friends to wear helmets.** Peer pressure can be used in a positive way if several families in the neighborhood start making helmet use a regular habit at the same time.

Remember: Accidents causing head injuries can occur on sidewalks, driveways, bike paths and parks as well as streets. You and your children cannot predict when a fall from a bike will occur. It's important to wear a helmet on every ride, no matter how short.

What can states and communities do to increase use of bicycle helmets?

States and local communities are implementing a variety of strategies to increase use of bicycle helmets, particularly by children. These range from educational programs for parents and children, to public media campaigns, to helmet distribution programs, to promoting helmet purchase through a hang tag on a new bicycle purchase. A study by Dannenberg et al., (1993) found that legislation combined with education increased helmet use substantially more than did education alone.

Currently, 13 states and many localities have enacted some form of bicycle helmet legislation (World Health Organization, 1995). The following states now have such laws covering children of various ages:

State	Age Group	Effective Date
NJ	Under 14	7/1/92
GA	Under 16	7/1/93
CT	Under 12	10/1/93
TN	Under 12	1/1/94
CA	Under 18	1/1/94
MA	Under 13	3/8/94
NY	Under 14	6/1/94
OR	Under 16	7/1/94
PA	Under 12	3/1/95
AL	Under 16	9/19/95
MD	Under 16	10/1/95
DE	Under 16	4/1/96
RI	Under 8	7/1/96

In 1992, New Jersey became the first state to make bike helmets mandatory for children as old as 13, and, thus, now has several years of experience with the law. At the end of the first year, the New Jersey State Highway Traffic Safety division conducted a survey to determine what actually was happening. Their research observed a helmet usage rate of 68.6 percent for children under age 14. This rate is unprecedented for any region of the United States. In addition, the rate for adults (not covered under the law), had also risen dramatically - to 37.2 percent. At the end of year two, New Jersey had a 65 percent drop in bike injuries.

For more information on bicycle helmet promotion and bicycle safety, contact:

The National SAFE KIDS Campaign, 111 Michigan Avenue, NW, Washington, D.C. 20010-2970, 202-939-4993.

The Bicycle Federation of America, 1818 R Street, NW, Washington, D.C. 20009.

American Academy of Pediatrics, AP Publications, PO Box 927, Elk Grove Village, Illinois 60009-0927, 800-433-9016.

Harborview Injury Prevention Research Center, 325 Ninth Avenue (ZX-10), Seattle, Washington 98104, 206-223-3399.

National Head Injury Foundation, 1140 Connecticut Ave., NW, Su. 812, Washington, D.C. 20036, 202-296-6443, 800-444-NHIF.

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This Q&A was prepared by The Arc's Health Promotion and Disability Prevention Committee, Donna Scandlin, lead author. Other committee members are Patricia McCoy, Chair; Deborah Cohen and Peter Leibert.

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